

ABSTRACT

A low voltage, low power, high linearity active CMOS mixer for radio frequency (RF) wireless communication applications consists of high linearity RF transconductor to convert the incoming RF voltage into a RF current; an ac-coupling stage to deliver the RF current to the next stage, and to block the DC signal and the flicker noise of the RF transconductor; followed by a current commutating (mixing) stage to down-convert the RF signal to the desired intermediate frequency (IF), and an IF section that converts the down-converted signal current back to voltage. The invention suggests a novel low-voltage, low-power RF mixer circuit that exhibits a high linearity in terms of IIP2 and IIP3 and is suitable for a low voltage, direct conversion receiver (DCR) which requires a relatively high IIP2. The DCR is a candidate for the fourth generation of mobile communication systems (4G).